

REMARKS

Claims 1, 2 and 4-10 are pending in the application and are rejected. Claim 1 has been amended to include the limitation "salt or surfactant concentration, or both" in the preamble and deleting the expression "wherein water solubility of the polymer film is triggered by a change in pH, salt or surfactant concentration, or both" from the body of claim 1. The preamble of claim 1 also states that the solid polymer film is immersed in an aqueous environment, as clear throughout the instant text, to make clear that it is the changes to this environment that triggers the water solubility of the polymer. Claim 10 has been amended to the preferred embodiment as stated at the bottom of page 5 of the text. The amendments do not constitute new matter.

Rejection Under 35 USC § 112

The confusion and inconsistency in claim 1 has been eliminated by stating the means of triggering the water solubility of the solid polymer film only in the preamble of the claim.

Rejections Under 35 U.S.C § 103(a)

The Examiner has rejected Claims 1, 2 and 4-10 as being unpatentable over U.S. Patent No. 4,708,870 to Pardini ("Pardini"). For the following reasons, Applicants respectfully traverse the Examiner's rejection of claims 1, 2 and 4-10 as being rendered obvious by Pardini.

Pardini teaches a method for imparting non-fugitive antimicrobial activity to an article of manufacture by forming the articles of manufacture from an acrylonitrile composition that imparts antimicrobial activity to acrylic polymers. Pardini specifically limits the amount of protonated amine to no more than 10%, or 3 mole %, in order to achieve the antimicrobial activity. The procedure to make the polymers is detailed in column 3 of Pardini. Even when diluted with copious amounts of water, the reaction product is a slurry which has to be filtered (see lines 50 to 60). These materials are insoluble in water, even when neutralized to pH 3 (col. 3, lines 11 to 14). The solubility of these materials decrease as the pH is increased. Therefore, the materials with 3 mole% protonated amine do not show the desired properties of water solubility triggered by changes in pH.

This is further established by the disclosure in column 2, lines 7 to 17 of Pardini, which discusses fibers and their "durability in the final product is independent of the end use". This means that the fibers will contain the antimicrobial properties through washing and wearing cycles. This is opposite the type of triggerable films of the instant invention which become solubilized and lose their functionality. Pardini further states that the protonated amines are quite stable especially when compared to the surface treated quaternary amines (column 2, lines 25 to 29). If indeed the polymers of Pardini were triggerable, they would lose their functionality once solubilized.

In marked contradistinction, the materials of the present invention with 5 mole% protonated amine clearly show changes in solubility as a function of pH and therefore have the desired property of water solubility triggered by changes in pH. The present Description states that if "the polymer has ... too little protonated amine monomer.. the polymer will become insoluble even under lower pH conditions" (p. 6, last line - p. 7, end of 1st paragraph). Indeed, as the Examiner states, Pardini does not teach or suggest its polymer being triggerably soluble in water based systems upon changes in pH, salt or surfactant concentration or both. In view of the above discussion, applicant is able to establish, simply by pointing to the discussion in Pardini, that the parameters of Pardini, particularly the 3% of protonated amine monomer units, would not be effective nor capable of having the desired property, i.e., controlled solubility.

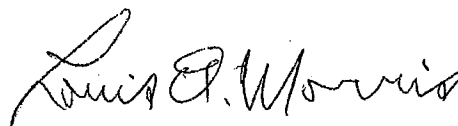
The instant claims, rather than being concerned with rates of release or release profiles, are concerned simply with the triggering of solubility. Of course, when the solid polymer film of the invention becomes soluble and is being used to encapsulate a material, the material will be completely released into the aqueous environment.

In view of the above discussion, Applicant has established that Pardini specifically limits the amount of protonated amine to no more than 10%, or 3 mole %. Applicant has found that the water solubility of a solid polymer film comprising 5 to 40 mole percent of protonated amine monomer units may be triggered by a change in the aqueous environment of pH, salt or surfactant concentration, or both. The fact that this discovery was surprising is a secondary consideration that negates any assertion of obviousness.

The Examiner has raised the issue that the instant specification indicates that from 2 mole percent of protonated amine monomer units is within the scope of the invention. However, Applicant has chosen the preferred range of from 5 to 40 mole percent, disclosed on page 4, lines 20 and 21 of the text, as setting the limits to the invention, because it is within that range that the triggering of the water solubility of the polymer will unquestionably occur. That range was stated to be preferred for that reason and Applicant is entitled to limit the claims in any manner supported by the text.

It is believed that the above amendment and remarks overcome the Examiner's rejections of the claims. Withdrawal of those rejections is respectfully requested. Allowance of the claims is believed to be in order, and such allowance is respectfully requested.

Respectfully submitted,

A handwritten signature in cursive script, reading "Louis A. Morris".

Louis A. Morris
Attorney for Applicants

Akzo Nobel Inc.
Legal & IP
120 White Plains Road, Suite 300
Tarrytown, NY 10591
Tel No.: (773) 320-6774